DOCUMENT RESUME

ED 363 657 TM 020 779

AUTHOR Peng, Samuel S.; Herriot, Roger A.
TITLE Strategies for Facilitating the Use of NCES Data for Education Policy Research and Decision Making.
PUB DATE Aug 93
NOTE 10p.; Paper presented at the Annual Meeting of the American Statistical Association (Boston, MA, August 1993). Author is affiliated with the National Center for Education Statistics (NCES).
PUB TYPE Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Agency Role; Data Collection; *Decision Making; Educational Assessment; Educational Policy; *Educational Research; Elementary Secondary Education; *Evaluation Utilization; *Information Dissemination; National Surveys; Policy Formation; *Research Utilization; Standards; *User Needs (Information)
IDENTIFIERS Data Quality; *National Center for Education Statistics; National Cooperative Educ Statistics System Forum; National Data Resource Center; Policy Research; Standardized Data Reporting System

ABSTRACT

In response to the legislative mandate and the increasing need for timely and high-quality data by policymakers at various levels, the National Center for Education Statistics (NCES) has initiated a number of actions, programs, and surveys to improve the amount and quality of education information. To improve the relevance of data, the NCES has instituted periodic reviews of the data system to identify data gaps. A systematic effort is also being made to obtain input from policymakers and practitioners in designing survey systems. To ensure data quality, the NCES has established formal standards for data quality. Another increasingly important mechanism is the National Cooperative Education Statistics System and Forum, which provides technical support for data collection efforts. Program and product reviews and evaluation studies also support data quality improvement. Strategies for disseminating NCES data include: (1) extended access to NCES data files; (2) user-friendly data files; (3) training seminars; (4) fellowship programs; (5) issue briefs and "Statistics in Brief" reports; and (6) the establishment of the National Data Resource Center. NCES data are much more accessible than they used to be, but the Center continues to search for ways to improve data access. Two charts illustrate these processes. (Contains 4 references.) (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 363 657

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

STRATEGIES FOR FACILITATING THE USE OF NCES DATA FOR EDUCATION POLICY RESEARCH & DECISION MAKING

Samuel S. Peng & Roger A. Herriot, National Center for Education Statistics
Samuel S. Peng, NCES/SSMD, 555 New Jersey Ave., Rm. 408,
Washington, DC 20208-5654

TM020779

To be published in the 1993 ASA Proceedings, by American Statistical Association.

TM

STRATEGIES FOR FACILITATING THE USE OF NCES DATA FOR EDUCATION POLICY RESEARCH AND DECISION MAKING

Samuel S. Peng and Roger A. Herriot, National Center for Education Statistics
Samuel S. Peng, NCES/SSMD, 555 New Jersey Ave., Room 408, Washington, DC 20208-5654

KEY WORDS: Relevancy, quality, dissemination, policy

INTRODUCTION

The National Center for Education Statistics (NCES) is the principal statistical office in the U.S. Department of Education. Its mission is to collect, analyze, and disseminate statistics and other data related to education in the United States and in other nations. In 1988, the Hawkins-Stafford Amendment to the Elementary and Secondary Education Act further broadened NCES' responsibilities and mandated substantial enhancements to education statistics.

In response to the legislative mandate and the increasing need for timely, high quality data by policy makers at various levels, NCES has initiated a significant number of actions, programs, and surveys to improve the amount and quality of education information. These activities are based on a three-prong approach. First of all, NCES has devoted a significant effort to identifying information needs and information gaps. The results of this effort have helped NCES to revise its existing data collection systems and initiate new systems to make NCES' data systems more responsive to the education community's need for relevant and timely information. Second, NCES has developed and institutionalized several long-range processes to increase data quality. Third, NCES has taken proactive actions to disseminate its data because to make data useful, potential users must know about the data and the data must be automated and easily accessible.

In other words, data relevancy, quality, and accessibility are the three main goals that have set the direction for NCES' endeavors to improve its programs. To achieve each goal, NCES has undertaken a number of actions, programs, and surveys. Details for these steps are described in the following sections.

STRATEGIES FOR IMPROVING DATA RELEVANCY

Providing relevant data is the first requirement for facilitating the use of data by decision makers. To meet this requirement, NCES has undertaken various actions and institutionalized certain processes, including: a) a periodic review of data systems to identify data gaps; and b) a systematic effort to obtain input from policy makers and practitioners in designing survey systems.

Periodic Review to Identify Data Gaps

The identification of information gaps requires a systematic and coordinated effort. It begins with program review by project staff and senior management. NCES staff periodically examine the current and emerging education policies and identify areas where education information is lacking. This review provides a basis for revising and enhancing the existing data systems. In addition, NCES conducts systematic studies to identify areas for program development. For example, NCES recently released a report on "Filling the Gaps", providing an overview of data on education in grades K through 12 (Bobbitt, Quinn, and Dabbs, 1992). NCES is currently studying the data needed for examining issues related to school and teaching effectiveness. To institutionalize this process, NCES has established an Associate Commissioner for Data Development whose major responsibilities include the examination of education policies and the review of current data systems to identify data gaps and recommend programs to fill those gaps.

NCES also systematically seeks input from data users and policy makers. The Advisory Council for Education Statistics, for example, routinely reviews NCES' data systems and projects and provides recommendations. Input from State and local users and providers is gathered through the National Forum on Education Statistics. The

TM020176

Forum is composed of liaisons appointed by each chief school officer in the 50 states, District of Columbia, and five outlying areas and by a range of Federal agencies that are major users or providers of education statistics. This group works to improve the quality and comparability of education data. Its mission is to ensure that our Nation has education data that are accurate, timely, and allow fair comparisons. To further this mission, the Forum produced and adopted A Guide to Improving the National Education Data System (Forgime, Jr. and Orland, 1990). This report identified what data are currently available and what data needs to be made available if we are to have a comprehensive information base for policy needs. The Guide presents 36 concrete recommendations to improve information about: a) student and community background statistics; b) education resources statistics; c) school process statistics; and d) student outcome statistics.

Moreover, the NCES project staff have held numerous meetings with policy makers such as Chief State School Officers, congressional staff, program officers, and experts in subject matter fields. Getting input from experts and data users has thus become an integral part of the NCES data collection process.

Systematic Input from Data Users in Designing a Study

In designing a new survey to collect relevant education information, NCES always endeavors to obtain input from potential data users through position papers, formal conferences, and working panel discussions. For example, in developing the Schools and Staffing Survey, NCES invited a group of well-known researchers and policy makers in elementary and secondary education to develop position papers describing the kind of data needed, issues to be addressed, and the way data are to be collected, reported, and used. These position papers were then synthesized and discussed in conferences involving researchers and policy makers. Results of this process provided a sound basis for designing the survey. Similarly, in designing the National Postsecondary Student Aid Study, NCES had extensive consultations with representatives from offices and organizations that needed information about participation in student aid programs, including the Office of Management and Budget, the Congressional Budget Office, the National Association of Student Financial Aid Administrators, the College Board, the American Council of Education, and higher education institutions as well as the program offices in the U.S. Department of Education. Similar processes were also applied to other studies such as the National Survey of Postsecondary Faculty and the Early Childhood Longitudinal Study.

These systematic efforts have greatly helped to develop programs to collect timely and useful data. Over the past decade, NCES has expanded its data collection systems and thus provided a great deal of new data for policy research and decision making. For example, in the area of elementary and secondary education, NCES has completed the following projects:

- Obtaining information about schools, school administrators, and teachers with the Schools and Staffing Survey;
- Restructuring the National Assessment of Educational Progress to provide State level data on educational progress;
- Developing the National Household Education Survey to collect information that is generally unavailable from school-based surveys, including early childhood education activities provided at home, children's readiness for school, and adult participation in adult education programs;
- Beginning a National Education Longitudinal Study with eighth graders to gain a better understanding of dropout issues and the transition from middle school to high school; and
- Supporting international mathematics, science, and reading assessment projects to develop education indicators for comparison purposes.

In the area of postsecondary education statistics, NCES has developed and implemented the following programs:

- The Integrated Postsecondary Education Data System to collect basic information from all types of postsecondary

institutions, including less than two-year institutions;

- The National Postsecondary Student Aid Study to collect information about participation in financial aid programs and characteristics of students at various levels of education in various types of institutions;
- The National Postsecondary Faculty Study to collect information about faculty characteristics, workload, compensation, and productivity as well as policies for tenure, promotion, and hiring;
- The Baccalaureate and Beyond Study to examine the transition of college graduates from college to the work force and graduate studies and other related factors; and
- The Beginning Postsecondary Student Survey to examine a college cohort regarding their progress, persistence, and completion of college education over a period of six to eight years.

Moreover, NCES is also planning to start a longitudinal study with a kindergarten and a birth cohort to obtain information about such factors as early childhood experiences and education programs. All these new programs are a reflection of the need for obtaining policy-relevant data and filling information gaps.

STRATEGIES FOR INSURING DATA QUALITY

Insuring the quality of data--i.e., timeliness, reliability, validity, and accuracy--is the second requirement for facilitating the use of data for research and policy discussion. To achieve this goal, various procedures have been built into the data collection process, including built-in checks for consistency of responses during telephone interviewing and quality control in data processing and editing. In addition, NCES has developed a variety of long-range mechanisms to achieve high quality data.

Formal Standards

The establishment and use of written standards is one way to insure the quality of data. Recent legislation as well as recommendations from various advisory panels and organizations have led NCES to develop written standards for conducting its work. The first comprehensive written standards were adopted in 1987, and a major effort to revise and update the standards began in 1989 and was completed and adopted by NCES in January 1992. The current version of the NCES Statistical Standards includes twenty "standards" (i.e., procedures that must be followed) and two "guidances" (i.e., procedures that are desirable but not mandatory) (Flemming, 1992). Many of the standards are directed toward the attainment of high quality data, both from sample surveys and from universe surveys, and other standards are directed toward documenting and evaluating survey designs and their resultant data quality. These standards are incorporated into NCES' data collection, processing, and analysis contracts and thus, form a foundation for the quality of work that the contractor must accomplish.

Cooperative System

Another mechanism which is becoming increasingly important is the National Cooperative Education Statistics System and the Forum. In addition to the role they play with respect to relevancy of the data, they are also instrumental in enhancing the quality of the data. Under this system, NCES provides state and local education agencies with technical support for enhancing the quality of their data and with the opportunity for discussing and developing certain statistical standards.

A couple of examples will illustrate how the cooperative system is working to achieve these objectives.

1. The Standards for Education Data Collection and Reporting (SEDCAR) project was initiated to provide guidelines and a checklist of good practice in the areas of data collection, processing, analysis, and reporting (Westat, 1991). In non-technical language, SEDCAR provides educational practitioners with a workable set of guidelines to help them produce

accurate, uniform, and relevant information.

2. Another dimension is the improvement of human capital. The "State Personnel Exchange System" facilitates the exchange of ideas and innovations among states and the "Annual Data Conference" provides training opportunities. Training is also provided as part of the fellows program. This program is designed to familiarize potential data users from elementary, secondary, and post-secondary agencies with the operation, standards, and products of NCES.

The system has improved the cooperation of state and local education agencies and has helped NCES to gain a greater appreciation of the availability of data from schools and state and local education agencies and to influence the development of these data to promote comparability and reduce bias. For example, through the system, common definitions for certain data elements such as the dropout rate and the attendance rate are being developed.

Consultations with Experts

During the process of developing a data collection system, NCES' project staff have extensively consulted with experts in related fields by sponsoring position papers and holding conferences. Furthermore, data collection contracts require the contractor to establish working panels consisting of selected experts to work with the contractors to ensure the soundness of the survey design and instruments.

Internal Program and Product Reviews

All project designs and analysis reports go through internal reviews by technical staff from different divisions. This process has helped to identify problem areas and weaknesses and improve the quality of NCES' reports. For example, a study report will go through reviews by a branch chief and technical officer in the division and then by peer reviewers. The peer reviewers will typically include several experts from outside the agency. Comments of the reviewers are then adjudicated by the Chief Mathematical Statistician or designee and incorporated into the revision of the report.

Evaluation Studies

There is an ongoing program within NCES directed toward monitoring and reporting on data quality in education surveys. As part of that program a number of special studies have been recently initiated and are in the process of being completed. Among these studies are the development of a "quality profile" for the Schools and Staffing Survey (SASS), the design and development of an ongoing assessment of the Common Core of Data (CCD), an examination of potential nonresponse biases in the state trial assessments of the National Assessment of Educational Progress (NAEP), and an investigation of the effects of undercoverage of certain types of postsecondary institutions on the estimates produced by the Integrated Postsecondary Education Data System (IPEDS). These evaluations inform data users about the quality of the data and provide NCES and its contractors with valuable information for future improvements in data quality.

STRATEGIES FOR DISSEMINATING NCES DATA

Effectively and proactively disseminating data to potential users is the third requirement for facilitating the use of NCES data for research and policy discussion. NCES has taken a number of actions in this endeavor, including: 1) providing greater access to its data through a "licensing" program; 2) developing user friendly data files; 3) offering policy-level and technical-level training seminars to researchers and policy analysts; 4) sponsoring AERA and ASA Fellowship Programs; 5) developing issue briefs and annotations of products based on NCES data; and 6) establishing the National Data Resource Center. Also, to facilitate communication among users and between users and NCES' project staff, NCES is planing to have an electronic bulletin board available for each data system.

Expanded Access to NCES Data

Under law, the identity of survey respondents must be kept confidential. Thus, any information in a data base that could be used to identify individual respondents must be recoded or removed from the file prior to its release to the public. This altering process frequently affects the detailed geographic codes, school characteristics, etc. which researchers often need. As a result, NCES developed a licensing program to provide access to this additional information. To apply for a license, users must specify their need for accessing the confidential data, sign an affidavit to maintain the confidentiality of the data, and promise to use the data only for statistical reporting purposes.

User-Friendly Data Files

In addition to the relevancy of a data base, the complexity of the data file and the accessibility of the data greatly determine the propensity of the data to be used by policy researchers. Over the years, NCES staff have devoted a great amount of effort to preparing user-friendly data files. All major data bases such as High School and Beyond, the National Education Longitudinal Study of 1988, and the National Postsecondary Student Aid Study are carefully and thoroughly documented, and examples for accessing the data are provided.

In recent years, NCES has begun to provide an electronic codebook with data files to enable researchers to quickly browse through the list of variables in the data file, to view a frequency tabulation for each variable, and to see a full description of each questionnaire item. Also, to eliminate a great deal of manual work traditionally required in an analysis and thus minimize many inadvertent mistakes, the data files also include computer software to allow analysts to select (tag) variables needed for an analysis and automatically create an SPSS or SAS system file. In addition, because all of the selected variables are clearly labeled and documented, analysts can easily review the data abstracted for the study.

NCES also is moving toward using CD-ROMs to store and distribute its data. A single disk can hold a large amount of data as well as computer programs for facilitating data retrieval and analysis processes. For example, the CD-ROMs for the National Postsecondary Student Aid Study and the National Survey of Postsecondary Faculty include software for producing correct variances for such estimates as means and percentages.

As of this month, High School and Beyond (HS&B), the National Education Longitudinal Study of 1988 (NELS:88), the National Household Education Survey (NHES), the National Postsecondary Student Aid Study (NPSAS), and the National Survey of Postsecondary Faculty (NSOPF) have an electronic codebook; and NPSAS, NELS:88, the Schools and Staffing Survey (SASS), and the National Assessment of Educational Progress (NAEP) are available on CD-ROM.

Training Seminars

As an outreach effort, NCES has conducted training seminars for potential data users. These seminars have familiarized participants with the potential uses of NCES data in policy research and have provided them with hands-on experience in accessing and analyzing data. During the seminar, participants first review and discuss the content of a data base, policy issues that can be addressed by the data, and some examples of studies that have used the data. Participants then practice procedures for accessing and analyzing the data. In addition, participants review technical issues such as weighting and proper procedures for statistical significance testing.

Over the past two years, a number of seminars have been conducted. Participants have included young faculty members and advanced graduate students from higher education institutions, directors and analysts from OERI research centers and regional educational laboratories, and directors and analysts from great city school districts. In the summer of 1993, NCES designed seminars to focus on studies of students at risk, effective schooling and teaching, rural education, and for the first time, analyzing NAEP data. NCES plans to recontact seminar participants periodically to find out what they have done with NCES data and to obtain their input for improving future data collection efforts. By the end of this summer, over three hundred researchers

will have participated in the training seminars, and many of them will have research assistants, graduate students, or research associates working on studies using NCES data bases.

As an outcome of the first seminar conducted two years ago, the participants formed an AERA special interest group for the purpose of promoting the use of NCES data and providing a forum for discussing and exchanging experiences in the use of NCES data. This special interest group has gained a great amount of support from both seminar participants and non-participants. It has organized well-attended sessions are the AERA annual conference and has offered an annual award for the best conference presentation using NCES data. It is expected that this group will continue to grow as more researchers begin to use NCES data in conducting their studies.

AERA and ASA Fellowship Programs

To provide researchers with the opportunity to interact with NCES staff and to work on projects using NCES data, NCES in collaboration with the National Science Foundation has established programs with AERA and ASA to offer fellowships. The program with ASA enables a selected fellow to work at NCES on a special methodological or substantive issue over a period of time. The program with AERA gives fellows a small grant for doing analysis using NCES data and provides them with the opportunity to work on special studies at NCES. All fellows are expected to interact with NCES staff--e.g., participate in project meetings--and give seminars to NCES staff.

Issue Briefs and Statistics in Brief

In addition to the regular publications such as the Condition of Education and Digest of Education Statistics and a variety of issue-oriented study reports, NCES also packages information for quick review by policy makers. In other words, information addressing a specific policy issue is synthesized in such a way that it can be easily understood. The "NAEP FACTS" is one example. In addition, NCES also issues reports referred to as "Statistics in Brief". These short releases provide timely statistics from a study, usually in a couple of statistical tables (or figures), to inform the general public and encourage researchers to do in-depth exploration of the data base.

National Data Resource Center

As part of NCES' effort to help analysts and decision makers gain access to the most current data collected by NCES, including the restricted data, NCES established the National Data Resource Center (NDRC) in a private firm under contract. The functions provided by NDRC include:

- Responding to requests for specific analyses and tabulations of data contained in a data set maintained by NCES;
- Providing assistance to on-site researchers;
- Developing standardized tables, graphic materials, and detailed reports of data contained in the data sets in anticipation of the data needs of education policy makers and researchers; and
- Providing limited programming analysis and other support functions.

Researchers can either request that NDRC personnel perform the statistical analyses for them, or they can go to the NDRC offices and perform the required statistical analyses on site.

Presently, NDRC has access to ten data bases maintained by NCES. They are:

1) Schools and Staffing Survey;
2) Private School Survey;
3) Common Core of Data;
4) National Longitudinal Study of the High School Class of 1972;
5) High School and Beyond;
6) National Education Longitudinal Study of 1988;
7) Integrated Postsecondary Education Data System;
8) National Postsecondary Student Aid Study;
9) Recent College Graduates Study; and
10) National Survey of Postsecondary Faculty.

In the future, more data bases will be added to the NDRC.

This service, provided by NDRC free of charge, has greatly expanded the use of NCES data

by researchers who need quick answers or do not have the capability to conduct analyses of complex data sets.

CONCLUSION

In summary, the main reason for collecting data is to use the data. NCES is keenly aware of this axiom and has attempted to make good use of data by its staff and contractors and to facilitate the use of data by policy analysts at various levels. NCES has undertaken a variety of programs to improve the relevancy of data to information needs, the quality of data collected, and the procedures for disseminating the results.

NCES has experienced some successes as a result of these efforts. First of all, NCES is providing much more education data now than a decade ago. As shown in Chart 1, there are various data systems to address issues relating to elementary/secondary and postsecondary education and student assessment. For studies of postsecondary education, there are ten major data systems that provide relevant data, and for studies of elementary/secondary education, there are eight data systems. These systems cover a variety of topics, broadly classified into institutions, instructional staff, students, and parents. For each topical area, there are multiple data systems (see Chart 2).

These data have been used in numerous reports, particularly national reports that describe the state-of-health of education in this country. These reports, such as the Condition of Education, Education Indicators, the National Report Card, and Digest of Education Statistics, are widely used by policy makers at the Federal, State, and local levels.

NCES data also have been used by researchers in academic institutions to address issues such as restructuring schools, school choice, student tracking, students at risk, effective schools, effective teaching, and minority education in mathematics and science. For example, over four hundred separate studies have been conducted using High School and Beyond data; many of them are dissertations. It is expected that even more studies will be done once the data for the fourth follow-up survey of the sophomore cohort become available. Similarly, many studies are expected to come out of NELS:88 and NAEP data.

The increased use of NCES data is partly due to the fact that NCES data are much more accessible now than a decade ago because of the advancements in computer technology. The increasing capabilities of PCs and CD-ROMs have helped NCES to disseminate its data. The licensing program and the National Data Resource Center have also helped analysts to gain access to NCES data, particularly the restricted data.

However, there is still room for improvement. NCES continues to search for effective ways of improving the relevancy, quality, and accessibility of its data. Thus, comments and suggestions from participants in this session would be greatly appreciated.

REFERENCES

Bobbitt, S. A., P. Quinn, and P. Dabbs. (1992). Filling the Gaps. Washington, D.C.: National Center for Education Statistics, U.S. Department of Education.

Flemming, Jr., E. (1992). NCES Statistical Standards. Washington, D.C.: National Center for Education Statistics, U.S. Department of Education.

Forgime, Jr., P. D. and M. E. Orland. (1990). A Guide to Improving the National Education Data System. Washington, D.C.: National Center for Education Statistics, U.S. Department of Education.

Westat, Inc. (1991). SEDCAR (Standards for Education Data Collection and Reporting). Washington, D.C.: National Center for Education Statistics, U.S. Department of Education.

Chart 1.--NCES Surveys, by NCES Data Divisions

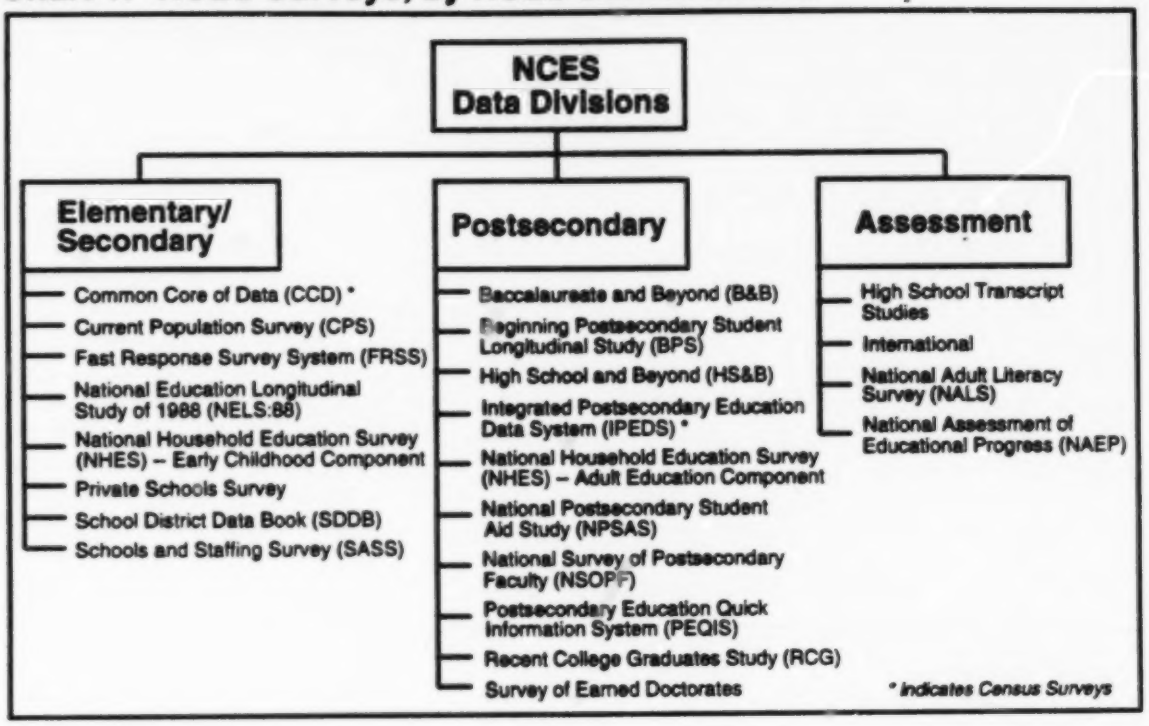
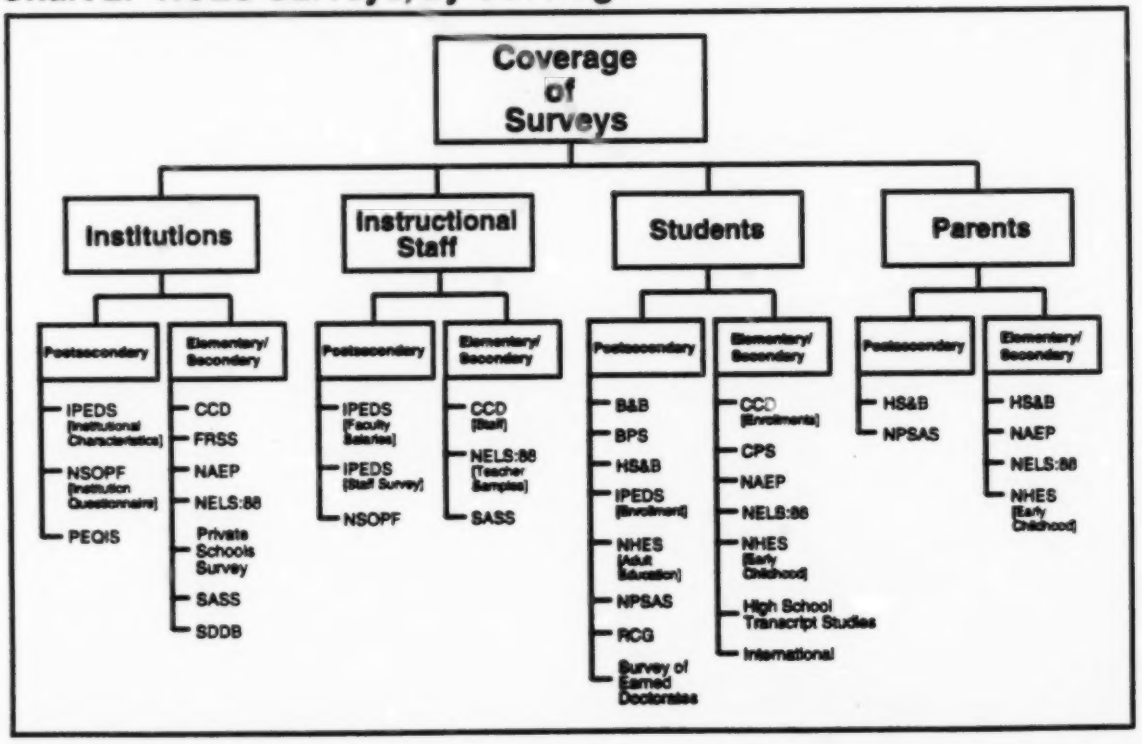

NCES Data Divisions
Elementary/ Secondary
Common Core of Data (CCD) *
Current Population Survey (CPS)
Fast Response Survey System (FRSS)
National Education Longitudinal Study of 1988 (NELS:88)
National Household Education Survey (NHES) -- Early Childhood Component
Private Schools Survey
School District Data Book (SDDB)
Schools and Staffing Survey (SASS)
Postsecondary
Baccalaureate and Beyond (B&B)
Beginning Postsecondary Student Longitudinal Study (BPS)
High School and Beyond (HS&B)
Integrated Postsecondary Education Data System (IPEDS) *
National Household Education Survey (NHES) -- Adult Education Component
National Postsecondary Student Aid Study (NPSAS)
National Survey of Postsecondary Faculty (NSOPF)
Postsecondary Education Quick Information System (PEQIS)
Recent College Graduates Study (RCG)
Survey of Earned Doctorates
Assessment
High School Transcript Studies
International
National Adult Literacy Survey (NALS)
National Assessment of Educational Progress (NAEP)
* indicates Census Surveys

Chart 2.--NCES Surveys, by Coverage



BEST COPY AVAILABLE